Link to Final Agency Decision
MPUC Docket No. E-002/CN-06-154
OAH Docket No. 15-2500-17838-2

STATE OF MINNESOTA
OFFICE OF ADMINISTRATIVE HEARINGS
FOR THE PUBLIC UTILITIES COMMISSION

In the Matter of the Application of Northern States Power Company d/b/a Xcel Energy for Three 115 kV Transmission Lines in Southwestern Minnesota

FINDINGS OF FACT, CONCLUSIONS OF LAW AND RECOMMENDATION

A public hearing was held before Beverly Jones Heydinger, Administrative Law Judge, commencing on May 16, 2007, at the Murray County Government Center, 2848 Broadway, Slayton, MN, and continuing at dates and places more specifically set forth below. The evidentiary portion of the public hearing was held on May 22, 2007, at the Public Utilities Commission, 121 Seventh Place East, St. Paul, MN.

James P. Johnson, Xcel Energy Services Inc., 414 Nicollet Mall, 5th Floor, Minneapolis, MN 55401, and Michael C. Krikava and Lisa M. Agrimonti, Briggs and Morgan, P.A., 2200 IDS Center, 80 South 8th Street, Minneapolis, MN 55402, appeared on behalf of the Applicant, Northern States Power Company d/b/a Xcel Energy (Applicant, Xcel Energy or the Company).

Julia E. Anderson, Assistant Attorney General, and Valerie M. Means, Assistant Attorney General, 445 Minnesota Street, Suite 1400, St. Paul, MN 55101, appeared on behalf of the Department of Commerce (Department).

Serving as public advisor was David L. Jacobson, planning director, Public Utilities Commission (Commission), Suite 350, 121 Seventh Place East, St. Paul, MN.[1] Mr. Jacobson or other Commission employees attended the hearings.

STATEMENT OF ISSUE

Has the Applicant met the criteria set forth in Minnesota Statutes §§ 216B.243 and 216B.2426 and Minnesota Rules Chapter 7849 for Certificates of Need for three 115 kV transmission lines?

The Administrative Law Judge recommends that the Certificates of Need be granted.

Based on the evidence in the hearing record, the Administrative Law Judge makes the following:

FINDINGS OF FACT

Parties

1. Northern States Power Company d/b/a Xcel Energy is a public utility. Xcel Energy, *inter alia*, owns and operates high voltage transmission lines in Minnesota, and delivers electricity to its customers in Minnesota and other states. Xcel Energy has applied for Certificates of Need to construct three 115 kV transmission lines in southwestern Minnesota and southeastern South Dakota (the Project) to support further wind turbine development along the Buffalo Ridge in southwestern Minnesota and southeastern South Dakota and to address reliability issues facing the City of Marshall, Minnesota Municipal Utility (Marshall or MMU).[2]

2. The Department is authorized by statute to participate in matters before the Commission involving utility rates and adequacy of utility services and to intervene in Certificate of Need proceedings.[3]

Procedural Background

3. On February 6, 2006, Xcel Energy filed a petition for approval of a notice plan (Certificate of Need Notice Plan Approval Request)[4] with the Commission pursuant to Minn. R. 7829.2550 for a transmission project in southwestern Minnesota.

4. On April 28, 2006, the Commission issued an Order Approving Notice Plan and Requiring Compliance Filing.[5]

5. On May 23, 2006, Xcel Energy filed a request for exemption from certain Certificate of Need application content requirements.[6]

6. On May 17, 2006, and May 23, 2006, Xcel Energy sent an information packet to approximately 1,500 residents and 33 county, city and township officials in the area along the Buffalo Ridge in southwestern Minnesota and southeastern South Dakota explaining that the new transmission lines are needed to support the development of wind power and to improve the reliability of MMU's power supply. The information packet included an overview map of the proposed Project region, a detailed map of the particular line project corridor pertinent to the respective landowner or resident, a description of the regulatory process, an explanation of rights-of-way and eminent domain, and notice of where the dates and locations of public meetings and hearings may be obtained. From May 29, 2006 through June 5, 2006, Xcel Energy published notice of the Project in local newspapers.[7]

6. On June 12, 2006, the following parties filed comments to Xcel Energy's exemption requests: Wind on the Wires, the Department, and Laura and John Reinhardt.[8]

7. On July 24, 2006, the Commission issued its Order Granting Exemptions.[9] The Order noted that the primary purpose for the three 115 kV lines proposed is to provide access to the transmission system for wind-generated electricity from the Buffalo Ridge area, not to meet an increase in demand. The Order approved Xcel Energy's exemption requests with modifications to reflect the proposals for additional information recommended by the Department and Wind on the Wires.

8. On December 4, 2006, Xcel Energy filed its "Application to the Minnesota Public Utilities Commission for Certificates of Need for Three 115 kV Transmission Lines in the Buffalo Ridge Area of Southwestern Minnesota" (Application),[10] pursuant to Minn. Stat. § 216B.243 and Minnesota Rules Chapter 7849.

9. On December 28, 2006, Xcel Energy submitted a list of errata for the Application.[11]

10. On December 29, 2006, the Department filed comments assessing the Application's completeness.[12]

11. On January 25, 2007, the Application came before the Commission for completeness review. At the hearing, the Commission heard from Xcel Energy, the Department, and members of the public: John Reinhardt, Carol Overland, and Kristen Eide-Tollefson.

12. On February 7, 2007, the Commission issued an Order Accepting Certificate of Need Application as Substantially Complete, Contingent on Submission of Additional Data (Completeness Order).[13] The order required Xcel Energy to provide the following additional information to supplement the Application: (1) data addressing the minimum demand in the Buffalo Ridge region, especially information regarding proposed ethanol plants or other large consumers of electricity; (2) information on wind curtailment in megawatts for the Buffalo Ridge area; (3) information concerning the possibility of providing data on the benefits of fuel diversity provided by increasing Minnesota's reliance on local wind resources; and (4) a discussion of the transmission studies undertaken by the Midwest Independent Transmission System Operator, Inc. (MISO) regarding groups of similar generators, especially wind generators, rather than individual generators. That same day, the Commission issued a Notice and Order for Hearing,[14] referring the Certificate of Need Application to the Office of Administrative Hearings for a contested case proceeding.

13. On February 12, 2007, Xcel Energy filed its first Supplemental Filing, providing the information required by the Completeness Order.[15]

14. On February 21 and 22, 2007, the Department held public information meetings in Slayton, Ivanhoe and Marshall, Minnesota to inform the public about the Project and the regulatory proceedings; discuss environmental,

social and economic issues of importance in the area potentially affected; and to gather public input regarding the scope of the Environmental Report required by Minnesota Rules 7849.0230. The meetings provided the public an opportunity to ask questions about the Project, and to suggest alternatives and specific impacts for the Department to address in the Environmental Report. The public was given until March 14, 2006, to submit written comments.[16] No written comments were received.

15. On February 26, 2007, the First Prehearing Conference was held before the Administrative Law Judge at the Commission, 350 Metro Square Building, 121 Seventh Place East, St. Paul, MN.

16. On March 2, 2007, the Administrative Law Judge issued a First Prehearing Order, establishing a schedule and setting procedures. The First Prehearing Order established an intervention deadline of April 17, 2007.

17. On March 22, 2007, the Commissioner of the Department issued an Environmental Report Scoping Decision, directing that the report discuss the Project description, the regulatory framework, alternatives to the Project, assessment of impacts and mitigation, and permits and approvals required. The Commissioner further required that the report be completed by April 24, 2007.[17]

18. Xcel Energy published notice of public hearings and evidentiary hearings in 12 newspapers throughout southwestern Minnesota and southeastern South Dakota between April 30, 2007, and May 6, 2007. The notice listed information about the date, time and location of the public meetings.[18]

19. On April 24, 2007, Xcel Energy submitted prefiled direct testimony of James R. Alders and Jason T. Standing of Xcel Energy Services Inc. and Brian Zavesky of Missouri River Energy Services (MRES), the wholesale electric supplier to MMU, in support of its Application.[19]

20. Also on April 24, 2007, the Department submitted prefiled direct testimony and exhibits of Christopher T. Davis, Christopher J. Shaw and Adam M. Sokolski.[20] The Department's Environmental Report was included as an exhibit to Mr. Sokolski's testimony.[21]

21. Hearings to obtain public comment were conducted:

a. May 16, 2007, at the Murray County Government Center, Courts Building Meeting Room, 2848 Broadway, Slayton, MN;

b. May 17, 2007, at 1:00 p.m., at the Lincoln County Courthouse, Assembly Room, 319 North Rebecca Street, Ivanhoe, MN; and

c. May 17, 2007, at 7:00 p.m., at the Marshall Municipal Utilities offices, Conference Room, 113 South Fourth Street, Marshall, MN.

22. No members of the public attended the Slayton hearing. Two wind developers and a contractor attended the Ivanhoe hearing and expressed general support for the project. In Marshall, five local residents attended and asked general questions about line placement.

23. The evidentiary portion of the public hearing was held on May 22, 2007, at the Public Utilities Commission, 121 Seventh Place East, St. Paul, MN. Witnesses for Xcel Energy and the Department testified at the hearing. All testimony and cross-examination was completed on that date. Also at the hearing, the parties stipulated that no post-hearing briefing would be submitted. Xcel Energy filed proposed Findings of Fact, Conclusions of Law and Recommendation on June 5, 2007; the Department had no objection to the substance of that document.[22]

24. The public comment period remained open until May 30, 2007; one comment was received.

The Parties and the Proposal

25. The only parties to this proceeding are Xcel Energy and the Department. No other person intervened.

26. By its Application, Xcel Energy seeks certification for the following three high voltage transmission lines:

a. A 10-15 mile 115 kV transmission line in Lyon County, MN between the Company's Lake Yankton Substation near Balaton, Minnesota to a new Company substation near Marshall, Minnesota (Lake Yankton/Marshall);

b. A 15-20 mile 115 kV line in Murray and Nobles counties between the Company's Fenton Substation near Chandler, Minnesota and the Company's Nobles County Substation northwest of Worthington, Minnesota (Fenton/Nobles); and

c. A 10-15 mile 115 kV transmission line in Lincoln County between the Company's Yankee Substation south of Hendricks, Minnesota and the Company's Brookings County Substation near Brookings, South Dakota (Yankee/Brookings). Approximately two to three miles of the line would be located in Minnesota, and the remainder would be located in South Dakota. Xcel Energy will obtain construction approvals for the South Dakota portion of the facilities from the South Dakota Public Utilities Commission.

27. The three lines combined will cost approximately $37 million. The Lake Yankton/Marshall line will cost approximately $12.5 million; the Fenton/Nobles County line will cost approximately $13.7 million; and the Yankee /Brookings County line will cost approximately $11.2 million.[23] Xcel Energy estimates that the $37 million capital investment translates to a rate impact of approximately $0.00011 per kilowatt-hour consumed.[24]

28. Xcel Energy stated that the three lines are needed to provide additional transmission outlet capacity in the Buffalo Ridge area in southwestern Minnesota to deliver wind-generated power to load centers. One of the lines, the Lake Yankton/Marshall 115 kV line, will serve the dual purpose of providing additional transmission outlet capacity and improving reliability to retail electric customers of MMU.[25]

29. The three new lines would require a 75-foot wide right-of-way, and would be built on structures approximately 80 to 100 feet tall and approximately 500 feet apart.[26]

30. In addition to the three lines that require Commission certification, Xcel Energy identified the need for equipment to maintain voltage levels on the transmission system in the Buffalo Ridge area. As such, Xcel Energy plans to develop a new Hazel Creek Substation to allow connection of voltage control equipment. Hazel Creek Substation will be located in Hazel Run Township in Yellow Medicine County near two existing 115 kV lines, one from Lyon County Substation to Minnesota Valley Substation, and the other an existing 115 kV line from Canby Substation to Granite Falls Substation. Hazel Creek Substation does not require a Certificate of Need but is part of the program of improvements necessary to increase wind generation development in the Buffalo Ridge area beyond the current system limit of 825 MW. Xcel Energy estimates that the Hazel Creek Substation will cost approximately $17 million; construction is expected to begin in 2008, and the substation is expected to be in service in 2010.[27]

31. Xcel Energy's proposed Project will also include expansion work at the Brookings County, Yankee, Lake Yankton, Fenton, and Nobles County substations to accommodate the switching gear, bus work and new transformers necessary to integrate the new 115 kV lines into the transmission network.[28]

32. If Xcel Energy receives Certificates of Need to construct the transmission facilities, it must also obtain routing approvals from the Commission or from the local authorities to actually construct the lines. Xcel Energy anticipates that detailed engineering will begin sometime in 2008 and construction could begin sometime in 2009. The lines are expected to be in service by the end of 2009 or in 2010.[29]

33. The Department agreed that the three 115 kV transmission lines are needed for additional transmission outlet capacity in the Buffalo Ridge region

and that the Lake Yankton/Marshall line is also needed for system reliability support in the Marshall area. The Department recommended that the Commission grant three Certificates of Need for the Project.[30]

Criteria for Certificate of Need

34. Minnesota Statutes § 216B.243 dictates that a certificate of need is required for a "large energy facility" as that term is defined in Minn. Stat. § 216B.2421. A large energy facility includes "any high-voltage transmission line with a capacity of 100 kilovolts or more with more than ten miles of its length in Minnesota or that crosses a state line."[31]

35. Each of the three 115 kV transmission lines Xcel Energy constitutes a large energy facility and requires a Certificate of Need from the Commission before construction can take place.

36. The applicant bears the burden of proving the need for a proposed transmission line and demonstrating that the statutory and rule criteria have been met.

37. Minnesota Rule 7849.0120 provides that a Certificate of Need for a high voltage transmission line shall be granted if it is determined specific criteria are met:

A. the probable result of denial would be an adverse effect upon the future adequacy, reliability, or efficiency of energy supply to the applicant, to the applicant's customers, or to the people of Minnesota and neighboring states, considering:

(1) the accuracy of the applicant's forecast of demand for the type of energy that would be supplied by the proposed facility;

(2) the effects of the applicant's existing or expected conservation programs and state and federal conservation programs;

(3) the effects of promotional practices of the applicant that may have given rise to the increase in the energy demand, particularly promotional practices which have occurred since 1974;

(4) the ability of current facilities and planned facilities not requiring certificates of need to meet the future demand;

(5) the effect of the proposed facility, or a suitable modification thereof, in making efficient use of resources;

B. a more reasonable and prudent alternative to the proposed facility has not been demonstrated by a preponderance of the evidence on the record, considering:

(1) the appropriateness of the size, the type, and the timing of the proposed facility compared to those of reasonable alternatives;

(2) the cost of the proposed facility and the cost of energy to be supplied by the proposed facility compared to the costs of reasonable alternatives and the cost of energy that would be supplied by reasonable alternatives;

(3) the effects of the proposed facility upon the natural and socioeconomic environments compared to the effects of reasonable alternatives;

(4) the expected reliability of the proposed facility compared to the expected reliability of reasonable alternatives;

C. by a preponderance of the evidence on the record, the proposed facility, or a suitable modification of the facility, will provide benefits to society in a manner compatible with protecting the natural and socioeconomic environments, including human health, considering:

(1) the relationship of the proposed facility, or a suitable modification thereof, to overall state energy needs;

(2) the effects of the proposed facility, or a suitable modification thereof, upon the natural and socioeconomic environments compared to the effects of not building the facility;

(3) the effects of the proposed facility, or a suitable modification thereof, in inducing future development;

(4) the socially beneficial uses of the output of the proposed facility, or a suitable modification thereof, including its uses to protect or enhance environmental quality; and

D. the record does not demonstrate that the design, construction, or operation of the proposed facility, or a suitable modification of the facility, will fail to comply with relevant policies, rules, and regulations of other state and federal agencies and local governments.

38. In addition, Minnesota Rule 7849.0230 requires the Department to prepare an Environmental Report evaluating the proposal and any alternatives.

39. Minnesota Statutes Section 216B.243, subd. 3 and subd. 3a prescribe the Certificate of Need statutory requirements for large energy facilities and generally follow the criteria included in Minnesota Rule 7849.0120. The provisions relevant to a Certificate of Need for a high voltage transmission line are:

> Subd. 3. Showing required for construction. No proposed large energy facility shall be certified for construction unless the applicant can show that demand for electricity cannot be met more cost effectively through energy conservation and load-management measures and unless the applicant has otherwise justified its need. In assessing need, the commission shall evaluate:
>
> (1) the accuracy of the long-range energy demand forecasts on which the necessity for the facility is based;
>
> (2) the effect of existing or possible energy conservation programs under sections 216C.05 to 216C.30 and this section or other federal or state legislation on long-term energy demand;
>
> (3) the relationship of the proposed facility to overall state energy needs, as described in the most recent state energy policy and conservation report prepared under section 216C.18, or, in the case of a high-voltage transmission line, the relationship of the proposed line to regional energy needs, as presented in the transmission plan submitted under section 216B.2425;
>
> (4) promotional activities that may have given rise to the demand for this facility;
>
> (5) benefits of this facility, including its uses to protect or enhance environmental quality, and to increase reliability of energy supply in Minnesota and the region;

(6) possible alternatives for satisfying the energy demand or transmission needs including but not limited to potential for increased efficiency and upgrading of existing energy generation and transmission facilities, load-management programs, and distributed generation;

(7) the policies, rules, and regulations of other state and federal agencies and local governments;[32]

* * *

(9) with respect to a high-voltage transmission line, the benefits of enhanced regional reliability, access, or deliverability to the extent these factors improve the robustness of the transmission system or lower costs for electric consumers in Minnesota;

(10) whether the applicant or applicants are in compliance with applicable provisions of sections 216B.1691 and 216B.2425, subdivision 7, and have filed or will file by a date certain an application for certificate of need under this section or for certification as a priority electric transmission project under section 216B.2425 for any transmission facilities or upgrades identified under section 216B.2425, subdivision 7;

(11) whether the applicant has made the demonstrations required under subdivision 3a;[33]

Subd. 3a. Use of renewable resource. The commission may not issue a certificate of need under this section for a large energy facility that generates electric power by means of a nonrenewable energy source, or that transmits electric power generated by means of a nonrenewable energy source, unless the applicant for the certificate has demonstrated to the commission's satisfaction that it has explored the possibility of generating power by means of renewable energy sources and has demonstrated that the alternative selected is less expensive (including environmental costs) than power generated by a renewable energy source. For purposes of this subdivision, "renewable energy source" includes hydro, wind, solar, and geothermal energy and the use of trees or other vegetation as fuel.

40. Minnesota Statutes Section 216B.2426 also governs the analysis in a Certificate of Need proceeding. It provides that "the Commission shall ensure that opportunities for the installation of distributed generation, as that term is

defined in section 216B.169, subdivision 1, paragraph (c), are considered in any proceeding under section 216B.2422, 216B.2425, or 216B.243." In turn, Minnesota Statutes Section 216B.169 defines distributed generation as: "(c) 'High-efficiency, low-emissions, distributed generation' means a distributed generation facility of no more than ten MW of interconnected capacity that is certified by the commissioner under subdivision 3 as a high-efficiency, low-emissions facility."

Development of the Proposal and Alternatives

41. In 2003, the Company was issued Certificates of Need to construct four high-voltage transmission lines that, coupled with the existing system, would achieve up to 825 MW of generation outlet transmission capacity in southwestern Minnesota.[34] To that end, Xcel Energy has invested more than $160 million in transmission improvements, and will complete the program of nearly two dozen projects needed to meet the 825 megawatts goal by early 2008.[35]

42. Shortly after obtaining these Certificates of Need, Xcel Energy initiated the Buffalo Ridge Incremental Generation Outlet (BRIGO) Study to determine what additional system improvements would be needed to meet growing demand for wind generation development in the Buffalo Ridge area. It was apparent from the beginning of the study that significant high voltage transmission improvements (*e.g.*, 345 kV) would be required. Such larger improvements typically take significant time to permit, design and construct. The study shifted focus to evaluate shorter term solutions *i.e.*, what smaller transmission infrastructure projects (*e.g.*, 115 kV) could be undertaken as an interim step to cost effectively provide a few hundred megawatts of additional generation outlet capacity until higher voltage projects could be developed.[36]

43. The Study Group initially identified eleven different transmission improvement options to increase outlet capacity on Buffalo Ridge. The individual options were designed to represent a broad range of possible power system improvements to achieve the study objective of a few hundred megawatts of additional outlet capacity.[37]

44. Option 1: Nobles Co./Chanarambie 115 kV #2:

This option would establish a second 115 kV line between the Nobles County Substation and the Chanarambie Substation and would add a 345/115 kV transformer at the Nobles County Substation. These facilities would be located in Nobles and Murray Counties.

45. Option 1A: Nobles Co./Fenton 115 kV #2:

This option would establish a second 115 kV line between the Nobles County Substation and the Fenton Substation. These facilities would be located in Nobles and Murray Counties.

46. Option 2: Lyon Co./Minn. Valley 115 kV #2:

This option would establish a second 115 kV line from the Lyon County Substation to the Minnesota Valley Substation and would include a rebuild of the existing Lyon County – Yellow Medicine – Minn. Valley Line from 69 kV to 115 kV. These facilities would be located in Lyon and Yellow Medicine Counties.

47. Option 2M: Nobles Co./Fenton 115 kV line #2 + Marshall Bypass:

This option would establish a second 115 kV line from the Lyon County Substation to the Minnesota Valley Substation and establish a bypass around the northern part of Marshall and hook up with the East River – Granite Falls 115 kV line. These facilities would be located in Lyon and Yellow Medicine Counties.

48. Option 3: Lake Yankton/Marshall 115 kV:

This option would establish a new 115 kV line between the Lake Yankton Substation and a new Marshall Southwest Substation planned by MMU to address future distribution supply needs. These facilities would be located in Lyon County.

49. Option 4: Lyon Co./Franklin 115 kV:

This option would establish a new 115 kV outlet line from the Marshall area eastward to the Redwood Falls/New Ulm vicinity by constructing a new 115 kV circuit between the Lyon County Substation and the Franklin Substation. This new circuit would involve rebuilding 36 miles of the existing 69 kV line to a 115 kV or double-circuit 115/69 kV configuration, and constructing 8 new miles of transmission line. These facilities would be located in Lyon, Yellow Medicine, Redwood and Franklin Counties.

50. Option 5: Chanarambie/Watonwan Jct. 115 kV:

This option would establish a new Chanarambie Substation to Watonwan Junction Substation 115 kV circuit. This option presumes prior construction of the proposed Lakefield Gen – Watonwan Junction 115 kV line. These facilities would be located in Murray, Cottonwood and Watonwan Counties.

51. Option 6: Yankee/Brookings/Toronto 115 kV:

This option would establish a second 115 kV line between the Yankee Substation and the Brookings County Substation and add a new Brookings County Substation to Toronto Substation 115 kV line. These facilities would be located in Lincoln County in Minnesota and Brookings and Deuel Counties in South Dakota.

52. Option 7: Yankee/Lyon Co. 115 kV:

This option would establish a new 115 kV line between the Yankee Substation and the Lyon County Substation through the MMU Southwest Substation. These facilities would be located in Lincoln and Lyon Counties.

53. Option 8: Yankee/Lyon Co./Franklin 115 kV:

This option would establish a new 115 kV line beginning at the Yankee Substation to the MMU Southwest Substation to the Lyon County Substation and ending at the Franklin Substation. These facilities would be located in Lincoln, Lyon, Yellow Medicine, Redwood and Renville Counties.

54. Option 9: Reconductors Only:

This option includes only upgrades to existing facilities to alleviate overload conditions. This tactic consists of reconductoring any overloaded lines and addressing transformer overloads by replacement with a higher-capacity unit, or installation of an additional unit.[38]

55. All options were considered in four separate iterations of analysis: 1) installed cost; 2) installed cost PLUS electrical losses; 3) installed cost PLUS losses PLUS the cost of the Yankee fix and the Marshall fix; 4) installed cost PLUS losses PLUS the costs of the Yankee and Marshall fixes and improvements needed to satisfy reactive power requirements.

56. Xcel Energy considered the need to address voltage stability concerns in the Yankee Substation area to meet expected growth, *i.e.*, the "Yankee Fix." Study reports confirmed that if additional increments of generation beyond the 825 MW design level were to be installed, several power system performance limitations would be encountered. One of the limiting conditions is voltage collapse (or dynamic instability) in the Yankee/Buffalo Ridge Substation vicinity following tripout of either the Brookings Co. 345/115 kV transformer or the Yankee – Brookings Co. 115 kV line. A similar voltage collapse potential also exists (at Fenton generation levels beyond 200 MW) on the southern portion of Buffalo Ridge, at Fenton/Chanarambie following outage of either the Nobles Co. 345/115 kV transformer or the Nobles Co. – Fenton 115 kV line. The options that did not address the Yankee voltage issues were assessed $6 million in additional cost as a proxy for the cost of implementing a Yankee Fix. Option 3 – 1A – 6, proposed by Xcel Energy here, provides a "Yankee fix" by adding a second Nobles Co. 345/115 kV transformer and by establishing a second Nobles Co. – Fenton 115 kV line.[39]

57. Xcel Energy examined options that would alleviate reliability concerns in the Marshall area, *i.e.*, the "Marshall fix." Presently, there are only two transmission sources to the Marshall 115 kV loop. Continued load growth at Marshall has rendered the existing two 115 kV sources inadequate for first-contingency conditions. Xcel Energy concluded that any Option which includes a new 115 kV into the Marshall 115 kV loop would provide additional load-serving capability. Options that did not address the Marshall load serving concerns were assessed $6.9 million as a proxy for the cost of addressing that need. Option 3 (the Lake Yankton – Marshall line), proposed by Xcel Energy here, establishes a new path into Marshall from the south, thereby providing loading relief for the existing two Lake Yankton – Lyon County 115 kV lines. With increased Buffalo Ridge generation, loss of the newer Lake Yankton – Lyon Co. 115 kV circuit can overload older circuits, which have smaller conductors. A benefit of the Lake Yankton – Marshall line is that the Lake Yankton Static VAR System (SVS) is brought electrically closer to the Marshall load center. This results in improved voltage regulation for the Marshall area as well as increased load-serving capability. The Lake Yankton – Marshall line also would provide a second connection from Lyon Co. Substation to the Marshall 115 kV load-serving loop,

thereby minimizing any “prior outage” Buffalo Ridge outlet limitations associated with the Marshall 115 kV loop segments.[40]

58. Based on outcomes derived by applying the factors previously mentioned, five options were eliminated from further consideration: Nobles Co./Chanarambie (Option 1); Lyon Co./Minn. Valley (Option 2); Nobles Co./Fenton 115 kV line #2 + Marshall Bypass (Option 2M); Lake Yankton/Marshall (Option 3); Lyon Co./Franklin (Option 4); Yankee/Lyon Co. 115 kV (Option 7); and Yankee – Lyon Co. /Franklin (Option 8).[41]

59. The initial Option 3 was excluded because it would have merely added a third line from Lake Yankton to Lyon County. The Study Group determined that the option was too costly given the wind generation outlet capacity it would provide. The Study Group ultimately decided to modify Option 3 (originally Lake Yankton to Lyon County) to Lake Yankton to Marshall and combine it with Option 1A to examine the effects on the system. Based on the positive results of the combination, Xcel Energy decided to propose Option 3 – 1A, along with Option 6.[42]

60. Xcel Energy excluded Option 4 from further consideration because less costly options provided the same amount of wind generation outlet.[43]

61. The remaining options – Nobles Co./Fenton (Option 1A), Lake Yankton/Marshall (Option 3–revised), Chanarambie/Watonwan Jct. (Option 5), Yankee/Brookings/Toronto (Option 6), and Reconductors Only (Option 9) – were evaluated further along with four combination options, for a total of nine alternative system plans. These options all met the Power System Performance Standards established by the North American Electric Reliability Council (NERC).[44] The combination options were included in recognition of the impact system losses had on the analysis. Significant cost savings result from reducing electrical losses, which would come from more connections to the rest of the system from Buffalo Ridge.[45]

62. Further simulations were conducted and engineering analysis was done to examine questions of system transient stability, system losses due to power flows, local system reliability issues at MMU and elsewhere, and power flow impacts on system constraints outside the Buffalo Ridge area.[46]

63. Ultimately, planning engineers concluded that the combination of the Project now proposed by Xcel Energy – Lake Yankton/Marshall (Option 3),[47] Fenton/Nobles (Option 1A),[48] and Yankee/Brookings County (Option 6)[49] (collectively, "3 – 1A – 6") – was the most economical option to increase generation outlet capability from Buffalo Ridge from 825 MW to about 1200 MW and to address the electric reliability issues facing Marshall.[50]

64. Xcel Energy decided to terminate the line at Brookings County rather than going on to the Toronto Substation in order to avoid interactions with

the external transmission network surrounding Buffalo Ridge. The Yankee/Brookings line provides needed outlet capacity in the northwestern part of Buffalo Ridge due to interest in developing wind generation in that area. There are currently more than 500 MW of generation interconnection requests in the MISO queue in the Yankee Substation vicinity. Without the Yankee/Brookings line no more than 250 MW of wind farm capacity can be reliably supported at Yankee Substation. Adding a line from Yankee Substation to Brookings County Substation provides an additional 250 MW of outlet capacity at Yankee. Thus Option 6 was revised.[51]

65. Xcel Energy's Application seeks authorization to construct these three high voltage transmission lines.

APPLICATION OF STATUTORY AND RULE CRITERIA

Minnesota Rule 7798.0120

66. The only system plan option developed at hearing and best supported by the record includes the following transmission lines: Fenton/Nobles, Yankee/Brookings County, and Lake Yankton/Marshall. For these options, there was substantial evidence for each of the criteria set forth in Minn. R. 7849.0120. No other alternatives were proposed.[52]

A. The Probable Result Of Denial Would Be An Adverse Effect Upon The Future Adequacy, Reliability, Or Efficiency Of Energy Supply To The Applicant, To The Applicant's Customers, Or To The People Of Minnesota And Neighboring States.

A(1). Accuracy of the forecast of demand for the type of energy that would be supplied by the proposed facility.

67. In its Application, Xcel Energy stated that all three 115 kV lines – Fenton/Nobles, Yankee/Brookings County and Lake Yankton/Marshall – are needed to support the State's renewables-based energy policy by furthering wind generation development along the Buffalo Ridge in southwestern Minnesota and southeastern South Dakota. Together, the three 115 kV lines will expand the transmission system to create approximately 1200 MW of generation outlet capacity in the Buffalo Ridge region – an increase of approximately 350 MW. The Lake Yankton/Marshall line will have an additional benefit of improving service reliability to MMU and its retail electric customers.[53]

68. Because of the transmission purposes to be served by the lines, Xcel Energy sought and was granted an exemption from certain forecast content requirements for the Nobles/Fenton and Yankee/Brookings County lines. Specifically, these two lines were exempted from the Application content requirements in Minnesota Rule 7849.0270 relating to forecast of future demand

of electricity and Minnesota Rule 7849.0280 regarding the applicant's capacity to meet forecasted demand using existing facilities because the new lines are intended to secure a new supply of energy rather than to meet increased demand. The Commission also granted an exemption from Minnesota Rule 7849.0280 for the Yankton/Marshall line. However, the Commission ordered Xcel Energy to provide information regarding system capacity in the Buffalo Ridge area and information about new generation in the Buffalo Ridge region that could deliver electricity to the Marshall area.[54]

69. The peak demand in the Buffalo Ridge region is 44 MW.[55] If the demand in the area decreases, more energy generated within the region will need to be exported to other markets by the transmission system.[56]

70. There are no known plans for ethanol plants or other large consumers of energy that would increase demand in the Buffalo Ridge area.[57]

71. There is ongoing interest on the part of developers to add more wind generation turbines on Buffalo Ridge. The need for additional transmission capacity in the Buffalo Ridge region is driven by at least five factors.

72. First, the Legislature has established policies for furthering renewable energy development. It has set aggressive goals for developing sources of renewable energy. Under Minnesota's newly-enacted Renewable Energy Standard (RES), Minn. Stat. § 216B.1691, Xcel Energy is now required to provide thirty (30) percent of the energy its Minnesota customers use from renewables-based generation by the year 2020. Other electrical utilities are required to provide 20 percent of their customers' electrical energy from renewables by 2020.[58] The Legislature has required regular progress reports.[59] The Commission must modify or delay the implementation of a RES only if it determines it is in the public interest to so.[60]

73. Additionally, electric utilities are required to offer their customers the opportunity to purchase electricity generated from the renewable or high efficiency sources.[61] As an incentive, with an approved plan, utilities are allowed automatic rate adjustments to recover transmission costs (investments and expenses) directly allocable to the need to transmit power from renewable sources of energy to a utility's retail customers.[62]

74. Second, in the resource planning process, wind generated power has generally been found to be the most economical renewable resource.[63] Xcel Energy's most recent resource planning docket, Docket No. E-002/RP-04-1752, confirmed wind power’s price competitiveness. Also in that docket, the Commission directed Xcel Energy to pursue 1680 MW of new wind farm development to meet part of the anticipated growth in the consumption of electricity by Xcel Energy's customers.[64] Xcel Energy regularly receives proposals for wind generated electric power purchases from large and smaller developers for Buffalo Ridge projects.[65]

75. Third, the State of Minnesota has expressed interest in supporting Community Based Energy Development (CBED) as part of the State's policy of renewables-based electric generation. Xcel Energy committed to 300 MW by the end of 2007 and another 200 MW by 2010. To date, Xcel Energy has received over 900 MW of CBED proposals. Current transmission constraints, however, prevent further CBED wind farm development in the Buffalo Ridge area. Without the proposed transmission facilities, the transmission system does not have sufficient capacity for new CBED projects in the Buffalo Ridge area.[66]

76. Fourth, the interest in further wind generation development on Buffalo Ridge is demonstrated in the MISO list of requests for generator interconnections – the "MISO Interconnection Queue." Under FERC rules, MISO administers the queue for requests by generators to interconnect to the Company's transmission system. As of late September 2006, there were more than 2100 MW of interconnection requests from wind generation developers in the six southwestern Minnesota counties of Lincoln, Lyon, Pipestone, Murray, Rock, and Nobles and in Brookings County, South Dakota. Roughly two thirds of the developers requested connection to Xcel Energy. As of May 2007, MISO had requests to connect over 3,000 megawatts of wind generation.[67]

77. Fifth, the Buffalo Ridge area of southwestern Minnesota enjoys the best wind resource in Minnesota for electric power generation[68] and has been the principal, large, utility scale, wind farm development location since the mid-1990s. Today there are over 525 MW of wind-powered electric generation operating on Buffalo Ridge and contracts are in place with developers to build about another 375 MW of nameplate capacity.[69]

78. One of the transmission lines, Lake Yankton/Marshall, is also needed for local electric service reliability by MMU. MMU relies on the Xcel Energy transmission system to deliver power to the city from its energy suppliers, which are Heartland Consumers Power District, Missouri River Energy Services and the hydro facilities of the Western Area Power Administration (WAPA) along the Missouri River.[70]

79. There are only two sources of power to the MMU electric distribution system provided by the transmission system’s current configuration: two 115 kV transmission lines, one from the Lyon County Substation (Lyon County Source), and one from WAPA's Granite Falls Substation (Granite Falls Source).[71]

80. Delaying construction of new facilities will hinder the State’s increased use of energy from renewable sources. The Commission exempted Xcel Energy from discussing the consequences of delay on meeting increased demand.[72]

81. When evaluating the performance of the electric transmission system, engineers utilize computer simulations of the interconnected system to

evaluate performance under a range of scenarios and to evaluate the performance of alternative solutions. In this case, models of system performance developed in 2001 were used in the analysis. Engineers examined system performance based on conditions anticipated in the 2007 to 2009 time frame.[73]

82. The peak demand for power in the City of Marshall exceeds the capacity of the existing transmission system to adequately deliver power in the event the Granite Falls Source is out of service. As the demand for electrical power grows, the amount of time MMU's residents and businesses are exposed to the risk of power failure grows. To eliminate the risk of power failure and meet NERC transmission reliability standards, a third transmission source of power to MMU is necessary.[74]

83. If the Lyon County Source were to fail, the Granite Falls Source must be able to meet the demand for electricity. However, the Granite Falls Source is only capable of providing adequate voltage support for up to 70 MW of MMU's load. When MMU is only being fed from the Granite Falls Source and the MMU load is 70 MW or greater, MMU and its customers start to experience operational problems with equipment due to low voltage conditions.[75]

84. MMU's power demand exceeds 70 MW about 78% of the days in a year. In 2005, the demand for power on the MMU distribution system exceeded 70 MW during 3650 hours of the year or 41.7% of the time; and in 2006 through October, the demand for power in the city exceeded 70 MW during 3516 hours of the year or about 52% of the time. MMU forecasts that electricity demand will continue to grow and thus the risk or exposure to power failure increases with time.[76]

85. The forecasting information provided in the Application for MMU was reviewed in the Big Stone II transmission line Certificate of Need request in Docket No. E017 et. al/CN-05-619. MMU's data was included in Missouri River Energy Services' total energy forecast and found to be reasonable by the Department. In this proceeding, the Department again found the forecast to be reasonable.[77] In addition, the Department included the BRIGO study in its 2005 biennial transmission report, anticipating this application.[78]

86. The Department concluded that another transmission source for Marshall is needed now because historical demand has already exceeded the level of energy that can be reliably supplied.[79]

87. Xcel Energy has provided a reasonable forecast for MMU and sufficient evidence to demonstrate the demand for additional transmission outlet capacity in the Buffalo Ridge Region and the need for a new 115kV transmission source to serve MMU.

88. If the project is not built, and absent an absent an alternate plan to increase transmission capacity, future development of Minnesota's best wind resource cannot occur.[80]

A(2). Effects of conservation programs.

89. Demand side management (DSM) is capable of reducing the need for system improvements needed to serve increased load by reducing demand. Transmission needs for renewable generation outlet cannot be met by DSM. Therefore conservation efforts could not obviate the need for additional transmission capacity in Southwestern Minnesota.[81]

90. If MMU's reliability needs were addressed separately, a DSM analysis would be appropriate. MMU's DSM programs include providing financial incentives to promote energy conservation and demand reduction. MMU has invested over $1.8 million in energy conservation and demand-saving measures over the last 5 years in the community. Residential, commercial, and industrial customers have all benefited from the programs as well as public facilities such as the Marshall Area YMCA and public schools.[82]

91. MMU's DSM efforts cannot, however, address the immediate need for another transmission source to Marshall. As noted by the Department, demand already exceeds reliable transmission capacity during outage conditions; while DSM can reduce the rate of growth, it is unlikely that it would be able to reduce actual load levels.[83]

A(3). Effects of promotional practices.

92. Xcel Energy stated that the proposed facilities will advance renewable wind generation development and improve service reliability in Marshall and are not the result of promotion of electricity.[84] There was no evidence to the contrary.

A(4). Ability of current facilities and planned facilities not requiring Certificates of Need to meet future demand.

93. There was no evidence that existing or planned facilities that do not require a Certificate of Need could meet the Buffalo Ridge transmission and MMU reliability needs identified in the Application.

94. In its Supplemental Filing of February 12, 2007, Xcel provided information about "curtailment," the practice of restricting access by wind generators to the transmission system during time periods when there is insufficient transmission outlet capacity. On a predetermined, rotational basis some wind facilities are curtailed to assure that the transmission lines do not exceed the level determined appropriate by MISO. As generation precedes transmission development, curtailment rises until transmission capacity

increases. Curtailment has remained relatively low relative to total wind generation.[85]

95. An increase in wind generation does not reduce the need for power plant capacity to meet demand because electrical power produced by wind turbines is variable. However, electrical power produced by a wind turbine reduces the amount that must be produced by a power plant.[86]

A(5). Effect of proposed facility or suitable modification in making efficient use of resources.

96. Buffalo Ridge, the premier area in this State for wind generation development, cannot be further developed without additional transmission infrastructure to deliver that generation to customers.[87] The new facilities are needed to capture and make efficient use of this renewable energy source.

B. <u>A More Reasonable And Prudent Alternative Has Not Been Demonstrated.</u>

B(1). Appropriateness of the size, type and timing of the proposed facility compared to reasonable alternatives.

97. Xcel Energy included a detailed engineering analysis in its Application that examined more than a dozen alternative system improvements to increase generation outlet capability from Buffalo Ridge to about 1,200 MW and to meet the reliability issues facing MMU. The analysis included broad participation by eleven transmission providers and additional participation and review by regulatory bodies in Minnesota, North and South Dakota, and interested environmental and energy policy advocacy groups.[88]

98. After considering capital costs, system electrical losses, technical performance and a number of other factors, Xcel Energy selected the three 115 kV lines proposed in its Application. The three 115 kV transmission lines provide the most reasonable and efficient means of increasing outlet capacity from the Buffalo Ridge area until major bulk power improvements can be made between southwestern Minnesota and the Twin Cities.[89]

99. In evaluating available options, Xcel Energy evaluated a direct current (DC) transmission line.[90] A DC circuit is generally a feasible alternative for transporting power long distances of several hundred miles without intermediate connections.[91] Most of the electrical deficiencies associated with increased generation development on Buffalo Ridge would not be addressed by a DC circuit. The objective of the facilities is to improve the transmission system on the Buffalo Ridge to deliver wind generation to higher voltage (*e.g.*, 345 kV) bulk transmission facilities for ultimate delivery to loads, not to directly transport large amounts of energy over long distances. The Department concurs that a DC circuit is not a viable option.[92] Xcel Energy has provided sufficient justification for eliminating the DC circuit as a viable alternative.

100. Xcel Energy also discussed upgrading and double circuit options in its Application. The transmission lines proposed by Xcel Energy are needed so that the system has enough capacity to withstand the loss of a critical circuit. In the case of the Fenton/Nobles County proposal, the critical circuit is the first Fenton – Nobles County line. Thus, if both lines were placed on the same structures or the existing line replaced with a higher capacity line, system reliability would not be improved. The same is true of the Yankee/Brookings County proposal. For the system to receive power in the event of a failure of the existing Yankee/Brookings County, the proposed line must continue to function. In the case of the Lake Yankton/Marshall proposal there are no transmission circuits in the vicinity that might be upgraded or double circuited.[93] Xcel Energy has provided sufficient justification for eliminating the upgrade and double circuit alternatives.

101. Xcel Energy evaluated undergrounding as an alternative.[94] Xcel Energy determined that undergrounding is an infeasible alternative because it is significantly more expensive than overhead transmission lines and no unacceptable environmental impacts are caused by the proposed overhead facilities.[95] Xcel Energy has provided sufficient justification for eliminating underground facilities as a viable alternative.

102. Xcel Energy addressed meeting the need for increased transmission capacity by modifying existing facilities (Option 9). This alternative consists of reconductoring any overloaded lines and addressing transformer overloads by replacement with a higher-capacity unit, or installation of an additional unit. This alternative is not reasonable because it is not the least cost option, and has the most expensive installed costs above 1130 MW.[96]

103. Xcel Energy also addressed the possibility of generation alternatives.[97] Xcel Energy determined that the addition of generation to the system is not a viable alternative. The Application demonstrates the purpose of the proposed transmission enhancements is to provide for the development of additional wind generation on Buffalo Ridge, the premier location for wind generation in Minnesota. It is not possible to locate generation in a way that would alleviate the need for more transmission on Buffalo Ridge if further wind farm development is to occur there.[98]

104. With respect to load serving in the city of Marshall, it is possible that generation could be located within Marshall to improve service reliability in the event of an outage of one of the existing transmission sources, and thus eliminate the need to rely on the transmission system for the power consumed in the city. However, to meet the demand for power as reliably as the proposed transmission addition, at least two small generators would need to be added to the system. One would need to be operated to keep total deliveries on the existing sources below the reliable limits of the transmission system and one would need to be available so the first generator could be removed for maintenance. Additional generators would need to be added to the system as

power demands grew on the MMU distribution system. Two 25-MW gas fired combustion turbine generators would cost approximately $60 million, well above the cost of the Lake Yankton/Marshall 115 kV line, estimated to cost $12.5 million. This alternative also would not meet the renewable generation outlet capacity objectives for Buffalo Ridge and thus would be in addition to the lines proposed by Xcel Energy.[99]

105. The Department agreed that generation is not an appropriate alternative for the Project.[100]

106. Xcel Energy has provided sufficient justification for eliminating additional generation as a viable alternative.

107. In its Application, Xcel Energy also provided an in-depth evaluation of construction timing considerations. Options which require large amounts of reconductoring and rebuilding require disproportionately more time. This arises because power system reliability considerations limit the number of circuits within a geographical sub-area that can be simultaneously out of service for upgrade or replacement, since many of the circuits involved are to some degree electrically in parallel. This dictates that construction cannot be undertaken simultaneously on more than a few existing circuits per season; rather, sequential construction is required. In contrast, options which rely less heavily on reconductors and rebuilds encounter fewer construction outage constraints.[101]

108. Xcel Energy concluded that Option 9, the reconductor only option, would take 4 years to construct. It is anticipated that the proposed Project (Option 3–1A-6) could be constructed in less than 3 years.[102]

109. Based upon the impending need for additional transmission outlet capacity in the Buffalo Ridge area and reliability concerns in the Marshall area, Xcel Energy has demonstrated that the timing of the proposed facilities is more appropriate than reasonable alternatives.

B(2). The cost of the proposed facility and the energy supplied by it compared to reasonable alternatives.

110. The proposed 115 kV transmission facilities will not directly supply energy. Rather, they will deliver energy from additional wind generation to be constructed on the Buffalo Ridge. Nonetheless, the Department reviewed Xcel Energy's screening analysis and concluded it was reasonable.[103]

111. Not all of the power placed into the transmission system can ultimately be used. Some of the power is “lost” on the transmission lines during operation of the system. Generally speaking, the higher the voltage of a particular facility the lower the losses are. Every megawatt of system losses has a production cost associated with it. By reducing system losses, a more efficient power system results and the cost to deliver power to the consumer is reduced.

112. The Department disagreed with Xcel Energy's losses analysis involving these options, asserting that the Study Group "undervalued the costs of both demand (capacity) and energy." The Department also contended that the analysis should include assumed losses after the 20th year of the life of the facilities.[104]

113. After conducting its own analysis, the Department nevertheless, concluded that Xcel Energy's proposal had the lowest amount of electrical line losses and was the least cost proposal.[105]

114. Xcel Energy has demonstrated that the cost of the proposed facilities and the energy to be supplied by the proposed facilities are more reasonable and prudent than that of reasonable alternatives.

B(3). Effects of the proposed facility upon the natural and socioeconomic environments compared to the effects of reasonable alternatives.

115. The Project will have short-term and long-term positive socioeconomic impacts. During construction, there will be crews of approximately 20 to 30 people residing in the local area. The presence of workers and the Project will lead to increased spending in the local areas and local businesses such as excavation contractors and welding and machine shops. Long-term, the transmission lines and substation additions will increase the local tax base. Marshall area business will benefit from improved electric service reliability. And county, township and school districts will benefit from property taxes assessed on the new transmission facilities and increased wind production tax revenues.[106]

116. The proposed Project and the alternatives in the BRIGO study have similar environmental impacts. Land use across the proposed and alternative project areas were typically greater than 90% agriculture. These alternatives do not have identified environmental factors that would prevent routing a transmission line between the endpoints or significant mitigation challenges. However, there are river crossing issues and concentrations of wildlife management areas (WMAs) that would need to be considered in routing. In general, cultural and environmental resources are clustered around permanent water resources and the associated wetland complexes.[107]

117. The proposed transmission lines may be routed near native prairie remnants that could harbor rare species.[108] Xcel Energy anticipates that it will be able to avoid prairie remnants in the routing process.[109]

118. There are no significant land use or environmental issues that would prevent its proposal from being implemented, nor are there any environmental issues that would impose an extraordinary cost to mitigate.[110]

119. The proposed facilities had the lowest electrical line losses of all options considered. Therefore, it would have the lowest environmental costs, since fewer MWhs would need to be generated.[111]

120. No member of the public opposed granting the certificates of need.

B(4). The expected reliability of the proposed facility compared to reasonable alternatives.

121. The service life of a transmission line is decades long and nearly indefinite with proper maintenance. Once transmission rights-of-way are established they rarely have been abandoned in the 80 to 100 year history of the industry. A transmission line is typically available for its intended use in excess of 99% of the time.[112]

122. Based on Xcel Energy's engineering analysis, all of the options studied appear to meet applicable NERC system reliability standards as renewables generation is added in the buffalo Ridge area. The proposed facilities offer the best overall electrical results because they have superior performance under system intact and contingent loading scenarios and voltages. They also have the least system losses. Furthermore, the proposed facilities address existing load serving reliability considerations in the Marshall area.

C. Benefits To Society Compatible With Protecting The Natural And Socioeconomic Environments, Including Human Health.

C(1). The relationship of the proposed facility to overall state energy and capacity needs.

123. The proposed lines will support further wind generation development in Southwestern Minnesota which will help utilities comply with the RES.[113]

124. The Legislature, the Commission, and the Department have encouraged increased generation from wind and other renewable resources.[114]

125. In its Application, Xcel Energy concluded that all three lines are needed to support the State's renewables-based energy policy by furthering wind turbine development along Buffalo Ridge in southwestern Minnesota and southeastern South Dakota. Together, the lines will expand the transmission system to establish approximately 1200 MW of outlet capacity in the Buffalo Ridge region – an increase of approximately 350 MW.[115] The third line – Lake Yankton/Marshall – will also improve service reliability to the city of Marshall, Minnesota.[116]

126. The proposed facilities will advance the State's policy objective of increased use of and reliance on renewable energy.

C(2). Effect of facility on natural and socioeconomic environment compared to not building the facility.

127. Further development of wind generation on Buffalo Ridge will ultimately require addition of major transmission facilities to enable reliable and efficient transport of power to the load centers to the east. Since major bulk power transmission improvements will take years to develop, this project will incrementally allow generation in Buffalo Ridge to increase from 825 MW to about 1200 MW and address reliability in Marshall until major additions are made to the transmission system.[117] Development of wind generation beyond 825 MW cannot occur without extended delay if the transmission facilities proposed by Xcel Energy are not built.[118] Any delay to infrastructure improvement will create a corresponding delay in the availability of additional wind power generation to meet the increasing demand for renewable energy and the RES requirements.

128. The no-build alternative could adversely impact ratepayers. The Buffalo Ridge is the premier wind resource area in Minnesota. If transmission constraints prevent further development and new wind generation projects are forced to locate in less desirable locations, the result will be lower energy production per MW of installed capacity, leading to an increased cost per MWh of delivered energy to cover the capital costs.[119]

129. Failing to build or delaying the addition of another transmission source to MMU will increase the risk of a service failure. MMU's loads exceed the 70 MW capacity of the Granite Falls Source about 52% of the time, and the risk will increase with growth in power demand on the MMU distribution system. MMU customers will continue to face the risk of low voltages or even unplanned blackouts if a third transmission source is not constructed.[120]

C(3). Effects of the proposed facility or a suitable modification in inducing future development.

130. Constructing the proposed facilities will induce future wind generation development in the Buffalo Ridge region. There is no evidence in the record that the Project will induce other forms of development.[121]

C(4). Socially beneficial uses of the proposed facility or a suitable modification including its uses to protect or enhance environmental quality.

131. Without transmission system improvements, further benefits to society associated with the development of renewables-based generation on the Buffalo Ridge cannot be achieved. The Project provides benefits in facilitating additional wind-power development in the area of the State with the best wind resource. It maximizes the available renewable generation outlet capacity in the shortest amount of time. It provides the best opportunity for additional wind

generation development in the region, and better assures that transmission infrastructure will not impede wind generation development in the foreseeable future. While the other alternatives may also provide these benefits, the Project (Option 3-1A-6) is the most cost effective alternative. The absence of any system improvements will impede renewable energy development in this State and will substantially reduce these benefits to society.

D. The Design, Construction, Or Operation Of The Proposed Facility Or A Suitable Modification Will Comply With Relevant Policies, Rules, And Regulations Of Other State And Federal Agencies And Local Governments.

132. Xcel Energy provided a list of necessary regulatory approvals on pages 7.103 to 7.105 of the Application and committed to comply with all relevant policies, rules, and regulations of state and federal agencies and local governments applicable to the construction and operation of the proposed transmission lines. There was no evidence that Xcel Energy could not or would not comply.[122]

Minnesota Rule 7849.0230

133. The Department timely completed the Environmental Report required by Minnesota Rule 7849.0230. The Department concluded:

> . . .that none of the alternatives considered have significantly fewer human, environmental or economic impacts than the proposed BRIGO Project. The existing lines or alternative corridor options appear to have similar or slightly greater environmental impacts, higher energy losses, and higher costs than the BRIGO Project. The non-build, conservation, and generation alternatives do not meet the need to create approximately 350 MW of additional transmission system capacity in the Buffalo Ridge region and resolve reliability issues in Marshal.[123]

Minnesota Statutes § 216B.243.

134. The Project will ensure safe and reliable service to MMU's customers during peak periods.[124] The Project will also provide transmission facilities that can be used by renewable-based generation. That energy can then be used by electric utilities to meet their load serving obligations in the State.

135. The need for the Project cannot be avoided through the use of energy conservation programs.[125]

136. The Project will help meet regional energy needs, particularly the need for increased use of renewable energy.[126]

137. The Project has not been motivated by any promotional activities. Rather, it is driven by the demand for additional transmission capacity for renewable generation and electrical system reliability needs.[127]

138. The Project will increase reliability of the energy supply in Marshall and increase the supply of renewables-based generation available to Minnesota load serving entities.[128]

139. The Project cannot be avoided through upgrading existing facilities, load-management programs or distributed generation.[129]

140. The Project will comply with the policies, rules and regulations of applicable state and federal agencies and local governments.[130]

141. The Project will improve electric service reliability for MMU and its retail customers and for wind generation within the Buffalo Ridge region, improving the robustness of the transmission system.[131]

142. The Project also meets the requirements of Minn. Stat. § 216B.243, subd. 3(10). The Project will further Xcel Energy's and other utilities' ability to meet the RES with additional wind generation from the Buffalo Ridge area.

143. All of the evidence in the record was reviewed and considered. The citations to transcripts or exhibits in these Findings of Fact are not intended to indicate that all evidentiary support in the record has been cited.

CONCLUSIONS

1. Any of the foregoing Findings more properly designated Conclusions are hereby adopted as such.

2. The Public Utilities Commission and Administrative Law Judge have jurisdiction to consider Xcel Energy's application for a Certificate of Need.

3. The Commission issued an Order Accepting Certificate of Need Application as Substantially Complete, Contingent on Submission of Additional Data on February 7, 2007.

4. Public hearings were conducted in three locations in the Project area and the public was given the opportunity to appear at the hearings or to submit written comments. An evidentiary hearing was held May 22, 2007.

5. Xcel Energy and the Department have complied with all applicable substantive and procedural requirements for a Certificate of Need.

6. No “large energy facility” can be sited or constructed in Minnesota without a Certificate of Need from the Commission.[132] Any high-voltage transmission line with a capacity of 100kV or more and more than ten miles of length in Minnesota is a “large energy facility.” Each of the proposed transmission lines for which Xcel Energy is seeking a Certificate of Need is a large energy facility.[133]

7. The record in this proceeding demonstrates that Xcel Energy has satisfied the criteria set forth in Minn. Stat. § 216B.243 and Minn. Rule 7849.0120.

8. No party or person has demonstrated by a preponderance of the evidence that there is a more reasonable and prudent alternative to any one of the three 115 kV transmission lines.

9. The Department has prepared an appropriate Environmental Report that reasonably addresses all of the subjects identified in the Scoping Decision.

10. Approval of the application will increase opportunities for the installation of distributed generation as set forth in Minn. Stat. § 216B.2426.

11. No conditions on the Certificates of Need are necessary.

12. The citations to exhibits in the Findings of Fact are not intended to indicate that all evidentiary support in the record has been cited.

Based on the foregoing Findings of Fact, Conclusions of Law, and the record in this proceeding, the Administrative Law Judge makes the following:

RECOMMENDATIONS

13. That the Commission grant a Certificate of Need for a 115 kV transmission line in Lyon County between Lake Yankton Substation near Balaton, Minnesota to a new substation near Marshall, Minnesota.

14. That the Commission grant a Certificate of Need for a 115 kV line in Murray and Nobles Counties between Fenton Substation near Chandler, Minnesota and Nobles County Substation northwest of Worthington, Minnesota.

15. That the Commission grant a Certificate of Need for a 115 kV transmission line in Lincoln County between Yankee Substation south of Hendricks, Minnesota and the Minnesota/South Dakota border near Brookings County Substation near Brookings, South Dakota.

Dated this _21st_ day of June, 2007

_/s/ Beverly Jones Heydinger__
BEVERLY JONES HEYDINGER
Administrative Law Judge

Reported: Shaddix & Associates

NOTICE

Notice is hereby given that, pursuant to Minn. Stat. § 14.61, and the Rules of Practice of the Minnesota Public Utilities Commission and the Office of Administrative Hearings, exceptions to this Report, if any, by any party adversely affected must be filed within 20 days of the mailing date hereof with the Executive Secretary, Minnesota Public Utilities Commission, 350 Metro Square, 121 - 7th Place East, St. Paul, Minnesota 55101 or by electronic filing. The Commission may modify the Date for filing exceptions. Exceptions must be specific and stated and numbered separately. Proposed Findings of Fact, Conclusions and Order should be included, and copies thereof shall be served upon all parties. If desired, a reply to exceptions may be filed and served within ten days after the service of the exceptions to which reply is made. Oral argument before a majority of the Commission will be permitted upon request. Such request must accompany the filed exceptions or reply.

The Minnesota Public Utilities Commission will make the final determination of the matter after the expiration of the period for filing exceptions as set forth above, or after oral argument, if such is requested and had in the matter.

Further notice is hereby given that the Commission may, at its own discretion, accept or reject the Administrative Law Judge's recommendation and that this recommendation has no legal effect unless expressly adopted by the Commission as its final order.

[1] Minn. Stat. § 216B.243, subd. 4 (2006) requires that a Commission employee be designated to facilitate public participation in the hearing process. Ken Wolf, Reliability Coordinator,

represented the Commission at the public hearings. Bret Eknes, planning director, represented the Commission at the evidentiary hearing. Unless otherwise noted, statutes are cited to the 2006 edition.

[2] Ex. 1 (Xcel Energy's December 4, 2006 Application to the Minnesota Public Utilities Commission for Certificates of Need for Three 115 kV Transmission Lines in the Buffalo Ridge area of Southwestern Minnesota).

[3] Minn. Stat. §§ 216C.09(b); 216C.10(a)(9); 216B.243, subd. 7.

[4] Ex. 2.

[5] Ex. 3.

[6] Ex. 4.

[7] On June 7, 2006, Xcel Energy submitted a Notice Plan compliance filing pursuant to the Commission's April 28, 2006 Order. Ex. 5.

[8] *See* Ex. 6 at 2.

[9] Ex. 6.

[10] Ex. 1.

[11] Ex. 7.

[12] Ex. 8.

[13] Ex. 9.

[14] Ex. 10.

[15] Ex. 11.

[16] Exs. 23, 24, 25 and 26.

[17] Ex. 12.

[18] The Notices were submitted into the record as Ex. 13.

[19] Exs. 14, 15 and 16.

[20] Exs. 21, 20, 22, respectively.

[21] Per 7849.0230, subp. 4, notice was published in the *EQB Monitor*, May 7, 2007 at 12.

[22] Letter from Julia E. Anderson, Assistant Attorney General, June 1, 2007.

[23] Alders, Ex. 14 at pp. 3-4.

[24] Ex. 1 at 2.2.

[25] Alders, Ex. 14 at pp. 3-4.

[26] Ex. 1 at 2.1. Maps of the proposed projects are found in Ex. 1 at 2.3-2.6.

[27] Ex. 1 at 2.2.

[28] Ex. 1 at 5.5.

[29] Ex. 1 at 2.2; Alders, Ex. 14 at pp. 4-5.

[30] Ex. 21 at 14.

[31] Minn. Stat. § 216B.2421, subd. 2(3).

[32] Subdivision 3(8) is inapplicable to the transmission facilities proposed here as they are intended to provide transmission, not generation. *See* Minn. Stat. § 216B.243, subd. 3(8) ("any feasible combination of energy conservation improvements, required under section 216B.241, that can (i) replace part or all of the energy to be provided by the proposed facility, and (ii) compete with it economically").

[33] Subdivision 3(12) is inapplicable because it relates solely to generating plants: "if the applicant is proposing a nonrenewable generating plant, the applicant's assessment of the risk of environmental costs and regulation on that proposed facility over the expected useful life of the plant, including a proposed means of allocating costs associated with that risk." Minn. Stat. § 216B.243, Subd. 3(12); Shaw, Ex. 20 at 20.

[34] *In the Matter of the Application of Northern States Power Company d/b/a Xcel Energy for Certificates of Need for Four Large High Voltage Transmission Line Projects in Southwestern Minnesota*, Order Granting Certificates Of Need Subject To Conditions, Docket No. E-002/CN-01-1958 (March 11, 2003) (Buffalo Ridge Order).

[35] Ex. 1 at 4.1.

[36] Standing, Ex. 15 at p. 3.

[37] Ex. 1 at 4.3.

[38] Ex. 1 at 4.4-4.5.

[39] Ex. 1, App. B at 14-15.

[40] Ex. 1, App. B at 35-36.
[41] Ex. 1 at 4.6.
[42] *See* Ex. 17.
[43] *See* Ex. 17.
[44] Standing, Ex. 15 at p. 4.
[45] Ex. 1 at 4.6.
[46] *Id.*
[47] Ex. 1 at 2.5 is a map showing the general location of the Lake Yankton/Marshall line.
[48] Ex. 1 at 2.6 is a map showing the general location of the Fenton/Nobles line.
[49] Ex. 1 at 2.4 is a map showing the general location of the Yankee/Brookings line.
[50] Ex. 1 at 4.6.
[51] *See* Ex. 18.
[52] *See* Minn. R. 7849.0110 (noting that the Commission may only consider alternatives proposed before the close of the public hearing that are supported by substantial evidence on the public record with respect to each of the criteria set forth in Minn. R. 7849.0120).
[53] Ex. 1 at 4.1.
[54] Ex. 6.
[55] Ex. 11, at S.1.
[56] Sokolski, Ex. 22 at p. 44.
[57] Ex. 11 at S.1.
[58] Minn. Stat. § 216B.1691, subd. 2a; as amended 2007 Reg. Sess., Chap. 3, § 1; Alders, Ex. 14 at p. 5; Ex. 22, Attach. (Environmental Report at 9-10).
[59] *Id.*, 3.
[60] *Id.*, subd. 2b.
[61] Minn. Stat. § 216B.169, subd. 2.
[62] Minn. Stat. § 216B.1645, subd. 2.
[63] Minn. Stat. § 216B.2422, subd. 2.
[64] ITMO Northern States Power Company d/b/a Xcel Energy's Application for Approval of Its 2005-2019 Resource Plan (Xcel 2005-2019 Resource Plan), Order Approving Resource Plan As Modified, Finding Compliance With Renewable Energy Objectives Statute, And Setting Filing Requirements, Docket No. E-002/RP-04-1752 (July 28, 2006).
[65] Ex. 1 at 3.3.
[66] *Id.*
[67] *Compare* Ex. 1 at 3.7-3.9 (MISO Generation Interconnection Queue dated September 26, 2006); *and also* Ex. 19 (MISO Generation Interconnection Queue dated May 22, 2007). Transcript (T.) 13 (Alders).
[68] Sokolski, Ex. 22 at App. D (Minnesota Wind Resource Map).
[69] Ex. 1 at 3.3.
[70] Ex. 1 at 3.5.
[71] Ex. 1 at 3.5.
[72] Ex. 6, exempting Xcel from Minn. R. pt. 7849.0300.
[73] Ex. 1 at 4.2.
[74] Ex. 1 at 3.6.
[75] Ex. 1 at 3.6.
[76] Ex. 1 at 3.6. Xcel Energy provided additional information regarding the City of Marshall's forecast of demand and electric energy consumption. *See* Ex. 1 at App. A.
[77] Shaw, Ex. 20 at p. 8.
[78] T. at 26 (Shaw).
[79] Shaw, Ex. 20 at p. 7.
[80] Ex. 22, Attach. at 32.
[81] Xcel Energy received an exemption from the conservation programs requirement with respect to two other lines: the Fenton/Nobles line and the Yankee/Brookings line. Ex. 6. *See also* Ex. 22, Attach. at 44.
[82] Ex. 1, App. A at 26.
[83] Shaw, Ex. 20 at p. 16.
[84] Ex. 1 at 1.13; Shaw, Ex. 20 at 19.

[85] Ex. 11 at S.3-S.4.
[86] Ex. 11 at S.9.
[87] Ex. 1 at 3.6.
[88] *See* Ex. 1 at Appendix B (Buffalo Ridge Incremental Generation Outlet Electric Transmission Study).
[89] Ex. 1 at 1.11–1.12.
[90] Ex. 1 at 4.7–4.8.
[91] Ex. 1 at 4.7.
[92] Shaw, Ex. 20 at 13.
[93] Ex. 1 at 4.9.
[94] Minn. R. 7849.0260B(7).
[95] Ex. 1 at 4.8-4.9.
[96] Ex. 1, App. B at 33-34; Davis, Ex. 21 at p. 4.
[97] Minn. R. 7849.0260B(1).
[98] Ex. 1 at 4.6-4.7.
[99] Ex. 1 at 4.7.
[100] Davis, Ex. 21 at p. 3; *see also* Ex. 22, Attach. at 41-43.
[101] Ex. 1 at Appendix B, pp. 37-38.
[102] *See* Ex. 1 at Appendix B, Table 8, p. 31 (displaying constructability and schedule considerations).
[103] Davis, Ex. 21 at p. 5.
[104] Davis, Ex. 21 at pp. 8-9.
[105] Davis, Ex. 21 at p. 12. *See also* Ex. 6 granting exemption to Minn. R. 7849.0260 A(3) and C(6) requiring the applicant to include expected losses under projected maximum loading and projected average loading; T. at 14-16 (Alders).
[106] Sokolski, Ex. 22 at 14.
[107] Ex. 1 at 7.2–7.3; Ex. 22, Attach. at 35-40.
[108] Ex. 1 at 7.1.
[109] T. at 18 (Alders).
[110] Ex. 1 at 7.1; *Accord*, Ex. 22.
[111] Davis, Ex. 21 at p. 12.
[112] Ex. 1 at 5.7.
[113] Shaw, Ex. 20 at p. 9.
[114] *See, e.g.*, Minn. Stat. §§ 216B.1612; 216B.169; 216B.1691; 216B.2423; ITMO the Application of Northern States Power Company for Approval of its 1998 Resource Plan E-002 /RP-98-32 (Order Modifying Resource Plan, Requiring Additional Wind Generation, Requiring Further Filings, and Setting Standards for Next Resource Plan, February 17, 1999; Xcel 2005-2019 Resource Plan, E-002/RP-04-1752.
[115] Ex. 1 at 4.1.
[116] Ex. 1 at 2.
[117] Ex. 1 at 1.6, 1.12 and Attach. B.
[118] Ex. 1 at 3.6; Ex. 22, Attach. at 33-34.
[119] Sokolski, Ex. 2 at 33.
[120] Ex. 1 at 3.6.
[121] The statutory basis for an investigation into whether a facility induces future development was repealed by Minn. Laws 2001, Ch. 212, Art. 7, Section 31.
[122] Ex. 1 at 1.12; Shaw, Ex. 20 at 18.
[123] Sokolski, Ex. 22 at p. 3.
[124] Minn. Stat. § 216B.243, subd. 3(1), subd. 3a.
[125] Minn. Stat. § 216B.243, subd. 3(1), subd. 3(2).
[126] *Id.*, subd. 3(3).
[127] *Id.*, subd. 3(4).
[128] *Id.*, Subd. 3(5).
[129] *Id.*, subd. 3(6).
[130] *Id.*, subd. 3(7).
[131] *Id.*, subd. 3(9).

[132] Minn. Stat. § 216B.243, subd. 2.
[133] Minn. Stat. § 216B.2421, subd. 2.